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39. The method of claim 18 comprising maintaining a pressure within the
reaction chamber at about 600 Torr during the depositing.

40. The method of claim 18 comprising providing a substrate within a
reaction chamber at a temperature of about 500 °C.

41. The method of claim 25 comprising maintaining a pressure within the
reaction chamber at from about 600 Torr to about 1 atmosphere during the
depositing.

42. The method of claim 25 comprising providing a substrate within a
reaction chamber at a temperature of about 500 °C.--

REMARKS

Claims 1, 3-8, 10, 11, 13-28 and 35-42 are pending in the above-referenced
application. Claims 2, 9, 12 and 29-34 were canceled and new Claims 35-42 were
added. The specification was amended to correct an inadvertent transposition of
two values.

35 U.S.C. 102(b) rejection:

Claims 1-8, 13-21, 23, 25 and 29-34 stand rejected under 35 U.S.C. 102(b) as
being clearly anticipated by Homma (U.S. Patent No. 5,288,518). Applicants
traverse with respect to Claims 1, 3-8, 13-21, 23 and 25. The rejection is moot with
respect to canceled Claims 2 and 29-34.

1 Each of Applicants' independent Claims 1, 18, 21, 23 and 25 has been
2 amended to include a temperature range from about 400 °C to about 700 °C for the
3 substrate within the reaction chamber, and a deposition rate range from about 1000
4 Å/min to about 10000 Å/min for the depositing of the appropriate material.

5 In contrast, Homma does not teach or suggest any deposition rate, and only
6 teaches a deposition temperature of 200 °C. Therefore, Applicants assert that
7 Homma does not explicitly teach every limitation of Claims 1, 18, 21, 23 and 25.
8 While Homma states at column 4, lines 26-27, that a temperature higher than 200 °C
9 may be used, Applicants direct the Examiner to column 3, lines 28-32, where
10 Homma states that "the fluorine-containing silicon oxide film formed ... at a lower
11 temperature of 200 °C according to this example is superior to the prior art ... film
12 formed at ... 400°C." Thus Applicants assert that it cannot be fairly stated that
13 Homma even suggests, yet alone implicitly teaches, employing temperatures as high
14 as about 400°C

15 Since M.P.E.P. 706.02 states that "for anticipation under U.S.C. 102, the
16 reference must teach every aspect of the claimed invention either explicitly or
17 impliedly" it must follow that the rejection of Claims 1, 18, 21, 23 and 25, as well as
18 Claims 3-8, 13-17, 19, 20, 22 and 24, which depend directly or indirectly therefrom, is
19 improper and must be withdrawn.

20 **35 U.S.C. 103(a) rejection:**

21 Claims 9-12 stand rejected under 35 U.S.C. 103(a) as being unpatentable
22 over Homma as applied to Claim 1, and further in view of Maeda et al. (U.S. Patent
23

1 No. 5, 800, 877). Applicants traverse with respect to Claims 10 and 11. The
2 rejection is moot with respect to canceled Claims 9 and 12.

3 Specifically, the Examiner admits that Homma fails to disclose the deposition
4 rate of the insulating material and the pressure of the reaction chamber. However,
5 the Examiner alleges that Maeda et al. discloses a deposition rate within the claimed
6 range and that as the deposition method of Maeda et al. is atmospheric CVD, the
7 pressure of the reactor in Maeda et al. encompasses Applicants' claimed range.

8 Applicants' Claim 1 has been amended to include a temperature range from
9 about 400 °C to about 700 °C for the substrate within the reaction chamber
10 (essentially the temperature previously claimed in the now canceled Claim 12). As
11 Claims 10 and 11 depend from Claim 1, this limitation is also included in each
12 dependent claim. As discussed above, Homma does not teach or even suggest the
13 temperature range limitation as recited in Claim 1. Rather, Homma teaches that a
14 lower temperature, about 200 °C, is desirable and that temperatures as high as 400°C
15 result in less desirable films. Maeda et al. also teach the use of a lower temperature
16 range than that claimed by Applicants; specifically, Maeda et al. teach a temperature
17 range of between 100 °C and 350 °C. Thus as neither Homma nor Maeda et al.
18 individually or in any combination teach or suggest the claimed temperature range,
19 the Examiner's combination of the cited art is shown fatally flawed before even
20 reaching the issues of deposition rate and pressure. Hence, no additional argument,
21 or admission, need be made to be responsive to this rejection.

22 However, the Examiner noted with respect to the now canceled Claim 12,
23 that the temperature range of Maeda et al., at its higher limit, is close to the lower

1 limit of Applicants' claimed range. Applicants understood this to imply that this
2 overlapping or near overlapping suggested Applicants' range, as the Examiner stated
3 that "no criticality ha[d] been established" with regard to the claimed range. (Page 6,
4 line 7 of the Office Action) Applicants cannot agree with this implication and
5 respectfully assert that Maeda et al imply that a temperature range of between 100°
6 to 350 °C is critical to their invention. For example, at column 4, lines 32-34, Maeda
7 et al. state that for their evaluations the temperature was varied film by film within
8 the range of 100° to 350 °C, which is reflected in the data presented in Figs. 3 and 5.
9 No temperatures outside this range being supplied. Referring to Fig. 8, each of the
10 characterized films was formed at either 300°C or 350°C. At column 5, lines 6-10,
11 Maeda et al. state that the refractive index data presented in Fig. 5 shows that as the
12 temperature increases, it becomes more and more difficult to introduce fluorine into
13 the film, the introduction of fluorine into the film being an object of the Maeda et al.
14 In addition, Fig. 3 shows that the deposition rate of Maeda et al. reaches a peak at
15 about 250 °C and then steadily decreases to a minimum value at 350°C. A person of
16 ordinary skill in the art would have no choice but to assume that the precipitous
17 drop in deposition rate from the peak at 250°C would continue if a temperature
18 greater than 350°C were employed. Thus Maeda et al. cannot be fairly read to imply
19 that use of a temperature in excess of 350°C would be desirable. Finally, it should be
20 noted that while Maeda et al. refer to a temperature range of "300° to 400 °C" in the
21 Summary at column 2, line 59, such a range is not supported by the teachings of
22 specification and is in fact contra-indicated.
23

1 Applicants respectfully contend, therefore, that no combination of Homma
2 with Maeda et al. fully teach or suggest Applicants' invention as claimed in Claims
3 10 and 11. Hence Applicants' assert that the rejection of Claims 10 and 11 is
4 improper and must be withdrawn.

5 Claims 22, 24 and 26-28 stand rejected under 35 U.S.C. 103(a) as being
6 unpatentable over Homma as applied to Claims 21, 23 and 25, and further in view of
7 Monkowski et al. (U.S. Patent No. 5, 104, 482). Applicants traverse.

8 The Examiner states that Homma teaches a method as described supra,
9 which Applicants interpret to mean the method of Applicants' Claims 21, 23 and 25
10 from which Claims 22, 24 and 26-28 depend, respectively.

11 Applicants have amended Claims 21, 23 and 25 to include a temperature
12 range from about 400 °C to about 700 °C for the substrate within the reaction
13 chamber, and a deposition rate range from about 1000 Å/min to about 10000 Å/min
14 for the depositing of the appropriate material. As shown with respect to the
15 rejection under 102(b), Homma does not teach these limitations. Therefore, for at
16 least this deficiency, a combination of Homma with Monkowski et al. cannot teach
17 or suggest Applicants' invention as claimed in Claims 22, 24 and 26-28. However
18 even if, arguendo, Homma were sufficient, Applicants cannot agree that it would
19 have been obvious to one having ordinary skill in the art to use the dopant sources of
20 Monkowski et al. with the method of Homma.

21 Monkowski et al. teaches vaporization of the liquid reactants, i.e. TEPO and
22 TEB, at temperatures between 150°C and 275°C. (Col. 8, lines 12-13). Monkowski
23 et al. states that such temperatures are selected "to completely vaporize all of the

1 liquid reactants without introducing thermal decomposition.” (Col. 8, lines 9-11).
2 The method of Homma, however, teaches a reaction temperature of 200°C. Thus
3 Homma’s method would be incapable of causing thermal decomposition of the
4 TEPO and TEB that is required for film formation. Therefore, Applicants assert
5 that it cannot be fairly stated that a person of ordinary skill in the art would believe
6 it possible to use the dopant sources of Monkowski et al. with the method of
7 Homma. Hence Applicants respectfully assert that this rejection under
8 35 U.S.C. 103(a) is improper and must be withdrawn.

9 In summary, Applicants have shown by and through the above argument that
10 Claims 1, 3-8, 10, 11, 13-28 are in condition for immediate allowance. In addition, as
11 new Claims 35-42 depend directly or indirectly from an independent claim argued
12 above are also in condition for immediate allowance. Reconsideration and
13 allowance of this application in view of the remarks and amendments herein is
14 requested.

15
16 Respectfully submitted,

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